

10.0 PROPOSED SECTION 61 FINDINGS

This section of the DEIR presents the Proposed Section 61 Findings for the Gloucester Harbor DMMP, as required under the Massachusetts Environmental Policy Act (MEPA) regulations at 301 CMR 11.12. Section 11.07 of the MEPA regulations require that the proposed Section 61 Findings be included in the DEIR for a project. As a state agency, MCZM is bound by the statutory requirement under MEPA to take all feasible measures to avoid or minimize damage to the environment. This section presents draft Section 61 Findings for the preferred alternative for Gloucester Harbor.

10.1 Aquatic Sites - G-Cell-1, G-Cell-2, G-Cell-3 and G-Cell-4

Potential environmental impacts associated with selection of the preferred alternative aquatic disposal sites in Gloucester Harbor (G-Cell-1, G-Cell-2, G-Cell-3 and G-Cell-4) include those associated with sediments and water quality, benthos, finfish, wetlands, wildlife, endangered species, navigation and shipping, land use, air quality and noise, historic and archaeological resources and recreation areas.

10.1.1 Sediments and Water Quality

Construction of disposal cells and dredged material disposal activities at the preferred alternative sites will lead to temporary impacts to the existing sedimentary environment at the site, including mortality of existing benthic organisms and the alteration of existing sediment composition. Analysis of sediment profile imaging data was gathered from the vicinity of the preferred aquatic disposal sites. This baseline data indicates that the existing benthic habitat quality exhibits characteristics indicative of minimal to moderate impact from existing harbor conditions. Existing benthic conditions include sediment aeration depths sufficient to support epifaunal and infaunal macro benthic organisms. The depth of aeration may be from adequate, tidal flushing, bioturbation by deposit feeding (Stage III) infauna, or a combination of both factors.

Placement of a final sand cap over the disposed dredged material will allow re-colonization to occur, although at a slow rate, as the organisms present at the site prefer finer grained sediments. Changes in species composition may result in the sand cap. As finer grained harbor sediments within the water column settle on the final sand cap over time, the benthic species composition at the site is likely to approach the composition of other nearby areas of the harbor.

The location of the proposed disposal sites within the upper reaches of the outer harbor minimizes potential storm-induced wave action impacts, minimizing the impacts to water quality from the resuspension of cap sediments. Also, the depth of the disposal sites, with a final cap elevations no higher than the ambient elevation, will also minimize any sediment resuspension at the site. Deeper, in-channel and near channel sites are exposed to smaller current velocities. The placement of coarse-grained sand as a final cap will also minimize sediment resuspension at the preferred alternative sites.

10.1.2 Benthos

Benthic resources include marine epifauna and infaunal invertebrates, and submerged aquatic vegetation. As described above, the community structure of benthic organisms is typically a function of sediment characteristics and water quality (Day, et. al., 1989). Dredging and disposal of sediment may impact benthic marine organisms by altering preferred microhabitat (i.e. sediment composition) or via interference with the organism's feeding type. Therefore, impacts to benthic epifauna and infaunal sessile invertebrates such as various bivalve mollusks and echinoderms are expected. The area of the disposal sites are closed to shellfishing, therefore there would be no impact to commercially or recreationally harvestable mollusks or shellfish. According to DMF mapping, blue mussels and soft-shell clams do inhabit a portion of G-Cell-4 (<1 acre. Over time (2-5 years), recolonization of these species is expected. Motile invertebrates such as various crustacea can avoid impact areas. However, they may have sedentary stages of their life cycle that could make them more susceptible to dredging and disposal of sediment. For instance, lobsters enter an early benthic phase of their life cycle following their planktonic larval stage. Surveys of the disposal site for early benthic phase lobsters was conducted, since lobstering is an important economic resource in Gloucester and the region. The study revealed that the disposal sites are not within suitable early benthic phase lobster habitat, since this developmental stage was not found during sampling. The other stages of the lobster's life cycle were found during EBP lobster sampling. However, juvenile and adult lobsters are highly mobile, and these forms are likely able to avoid dredging and disposal impacts. The timing of disposal cell construction and dredged material disposal after maintenance dredging of the area will limit the number of juvenile or adult lobsters impacted.

There were no eelgrass beds identified in the area of the proposed disposal site. Water depths are too deep to support the vegetation. The closest eelgrass beds to the G-Cell sites lie outside of the expected zone of influence caused by resuspension of harbor sediments during cell construction and dredged material disposal activities.

10.1.3 Finfish

Construction and disposal activities at the preferred alternative sites will have little impact on existing fisheries resources. Commercial fishing within the Inner Harbor is prohibited. Commercial lobstering is practiced at and near the G-Cell sites. Loss of lobstering ground would occur as the cells are excavated and filled. Lobster recolonization via emigration from surrounding areas is expected. Most of the important recreational sport fishing species in the harbor are neritic or pelagic and are able to easily avoid dredged cell construction and dredged material disposal activities. Many sport fish species, including cod, striped bass and tautog frequent areas proximal to submerged structures such as rocky ledges and reefs in the harbor, rather than the muddy and relatively featureless conditions at the disposal sites. However, winter flounder, an important recreational species in the area that frequents neritic waters, are bottom spawners. Larvae live as pelagic forms but return to estuaries to live as demersal adults. Timing of cell construction and dredged material disposal activities to avoid the spawning and egg development cycle of demersal fish will avoid impacts to these resources.

10.1.4 Wetlands

There would be no impacts to coastal wetlands or salt marsh. The entire area of the preferred disposal sites are sub-tidal, therefore, no coastal wetlands exist there. The sites are, however, classified as Land Under the Ocean within a DPA under the Massachusetts Wetlands Regulations at 310 CMR 10.26. Under the regulations, a project impacting Land Under the Ocean in a DPA must minimize adverse impacts to water circulation and water quality, including fluctuations in dissolved oxygen, temperature or turbidity, or the addition of pollutants. As discussed in the preceding section on water quality impacts, no adverse long term impacts to water quality are expected from construction and dredged material disposal activities at the site. Likewise, the impacts to water circulation are described in the preceding section. No adverse impacts are expected.

10.1.5 Wildlife

Wildlife impacts assessed included those to avifauna, marine mammals, and marine reptiles. No shorebird breeding or foraging habitat is located within the confines of the disposal site, since these areas are generally intertidal or supratidal areas. Prime shorebird habitat in Gloucester harbor lies outside of the UDM disposal zone of influence. However, Ten Pound island is a nesting area for birds (E. Hutchins, personal communication). The nature of the disturbance (sub-tidal) dictates that impacts to nesting habitat would not occur. Since finfish will leave the area to avoid dredging and disposal impacts, piscivorous waterfowl will also avoid the impact areas as they follow departing finfish concentrations. Molluscivorous waterfowl tend to congregate in areas with high mollusk density such as the vicinity of shellfish beds and reefs. Since shellfish beds do not lie within the disposal area or within the zone of UDM disposal influence, minimal impact to molluscivorous waterfowl is expected.

The various species of whales and other cetaceans found in the region, occur far offshore of Gloucester, rarely, if ever, entering harbor waters. Therefore, the only marine mammal species commonly found in Gloucester Harbor is the harbor seal, which frequents rocky ledges and shorefront areas, not the deep water and muddy bottom conditions of the disposal site. The harbor seal is also highly mobile, and quite able to avoid cell construction and dredged material disposal events. Therefore, no impacts to marine mammals are expected.

Marine reptiles in the region are represented by sea turtles. Two species of marine turtles that occur in the North Atlantic are not commonly found in Gloucester Harbor. They occur in the much deeper open ocean waters off Gloucester and the north Atlantic Ocean and rarely, if ever, enter Gloucester Harbor. The distance from the disposal site to the sea turtle habitat will preclude any impact to these species or their habitat from either cell construction or dredged material disposal activities.

10.1.6 Endangered Species

Although five whale and two sea turtle species listed by the USFWS occur in the ocean waters off of Gloucester, there is no indication that these species occur at the disposal sites within the harbor. Therefore, no impacts to endangered species habitat from cell construction and dredged material disposal activities will occur.

10.1.7 Navigation and Shipping

Gloucester Harbor has developed and prospered over the last three centuries as a vital center for Cape Ann fishing activity. The harvesting, processing and supporting industry to the fishing industry in Gloucester is directly linked to the ability of vessels to navigate within the Harbor in a safe fashion. Continued access to shore-side locations is an integral component of the Harbor Plan's vision of maintaining and expanding existing maritime, industrial and visitor harbor uses, to continue the Harbor as a working, productive port and economic asset for the City and Commonwealth. Disposal cell construction and dredged material disposal activities will be scheduled to avoid vessel movements, avoiding temporary impacts to existing navigation and shipping. The depth of the final cap elevation at the disposal sites with portions within the channel, will be below the existing authorized depth, and the portion of the cells outside of the navigation channel will be restored to ambient depths. Therefore, there will be no permanent impacts to existing navigation and shipping in Gloucester Harbor.

10.1.8 Land Use

The proposed disposal sites are entirely within subtidal waters, therefore there would be no direct impacts to existing shore front land use patterns surrounding Gloucester Harbor. Being located entirely under water, the disposal sites are not visible from land. Positive indirect impacts will result from the construction and use of the disposal site. The presence of the disposal sites will allow the cost effective disposal of UDM from Gloucester Harbor dredging projects, maintaining the economic viability of existing marine facilities and existing land use patterns along the Gloucester Harbor shoreline.

Construction and use of the proposed aquatic disposal sites are consistent with the stated goals of the Gloucester Harbor Plan. As noted on the preceding paragraph, the presence of the disposal sites will encourage the completion of the anticipated public and private dredging projects in Gloucester Harbor and provide a local disposal option for the UDM from those dredging projects. The Gloucester Harbor Plan also encourages the coordination with the DMMP to develop a suitable alternative for disposal of UDM.

10.1.9 Air Quality and Noise

Air quality and noise impacts from construction and use of the disposal site in Gloucester Harbor are expected to be temporary and minor in nature. Impacts will result from the heavy construction equipment used to construct the disposal site and to conduct dredged material disposal activities.

Air quality impacts will be minimized through the use of equipment that complies with emission standards applicable to equipment, use of proper emission controls, participation in DEP's Voluntary Diesel Retrofit Program(VDRP) and the temporary nature of the activity. Temporary stockpiling on or near land of dredged material may result in minor air quality and odor impacts to adjacent properties due to anaerobic decomposition of organic materials in the dredged sediment. These odors will be minimized with the use of lime as necessary. Volatilization of organic compounds in the stockpiled dredged material is not expected to occur because the short duration of stockpiling activities will not allow for complete drying of the dredged material.

Unavoidable noise impacts are also expected to be temporary, localized and minor. Also minimizing adverse noise impacts will be the use of properly muffled construction and dredging equipment, the temporary duration of the noise-producing activities and limiting activity to daylight hours.

10.1.10 Historic and Archaeological Resources

The location of the proposed disposal site within the subtidal area of Gloucester Harbor avoids direct and indirect impacts to nearby land-based local-, state- and federal-listed historic sites and districts.

Gloucester Harbor has a long and rich maritime history and is an area of archaeological sensitivity. However, the portions of the proposed disposal sites located within the confines of the existing federal navigation channel, have been previously disturbed by past dredging activities that deepened the area. This deepening of the area has likely destroyed any underwater archaeological resources at the site. Therefore, no impacts to underwater archaeological resources are expected in these areas.

Portions of the preferred disposal sites are adjacent to the federal channel, in areas that have not been previously dredged. These areas have the potential to contain underwater shipwrecks, although no known shipwrecks occur in this area. Nevertheless, detailed underwater archeological surveys will be conducted for all areas of the preferred alternative in the FEIR.

10.1.11 Recreation Areas

There would be no direct impacts to existing recreation areas from the construction or use of the proposed disposal sites. The site is entirely within subtidal waters, and the distance to the nearest recreational areas, Pavilion Beach and Fort Stage Park, functions to avoid direct impacts to the area. Disposal site construction and dredged material disposal activities may temporarily impact recreational fishing activities. This temporary impact is minimized by the presence of other recreational fishing areas in the harbor.

10.2 Implementation of Mitigation Measures and Proposed Mitigation Implementation Schedule***10.2.1 Aquatic Sites - G-Cell-1, G-Cell-2, G-Cell-3 and G-Cell-4***

Prior to the commencement of dredging projects, the construction of the disposal cell needs to be completed. Dredging of the disposal cells will be completed during an environmentally favorable window to reduce the disturbance to marine life. Dredge limits and locations will be located by GPS Geodetic Positioning System, which is a satellite positioning system, accurate to within a foot of the intended horizontal design limits. The dredge machinery will most likely be a large barge mounted crane with a clamshell bucket. Bucket size will likely be in excess of ten cubic yards. The material will be removed to the intended depth and side slopes. The Dredging contractor will also be compensated for an allowable over-dredge limit to ensure that the intended depths are achieved. The material is removed by a bucket and deposited within a transport barge called a scow. The scow will deliver the material to MBDS where it is positioned prior to dumping using GPS. A bottom dumping or split hull scow will most likely be used. These barges open from the bottom allowing the material to drop out through the water column to the sea floor below. This material is clean and will therefore not need to be capped.

Following the completion of each disposal cell, the dredging of unsuitable material from the harbors will be completed by mechanical means, using siltation curtains to minimize turbidity impacts. After being dredged, the UDM will be placed on a dump scow and transported to the disposal cell, where the material will be deposited.

The party responsible for the implementation of the required mitigation measures has not been identified to date. Potential entities include the Massachusetts Department of Environmental Management, the US Army Corps of Engineers, or the City of Gloucester operating through an existing or created public authority.

10.3 Draft Section 61 Finding

With the selection of the preferred alternative disposal sites for dredged material disposal from Gloucester Harbor, MCZM finds that, with implementation of the mitigation measures listed above, all feasible means have been taken to avoid or minimize damage to the environment.